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Current Situation and Path Selection of Digital Economy Cooperation Between China and Russia

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Abstract. China and Russia are geographically adjacent, with deepening political mutual trust and a solid foundation for economic and trade cooperation, laying a good basis for digital economy cooperation. In the context of the digital economy becoming a new engine driving global economic growth, deepening China-Russia digital economy cooperation is of important strategic significance for both countries to achieve high-quality development. By analyzing the economic development, trade, investment, and current status of digital economy cooperation between China and Russia, this paper systematically examines the progress and effectiveness of bilateral digital cooperation. The study finds that China-Russia digital economy cooperation faces practical challenges such as institutional environment and policy coordination obstacles, gaps in development levels and talent capabilities, and external environmental disturbance risks. Based on the above analysis, this paper proposes path selections for deepening China-Russia digital economy cooperation, providing reference for building a closer China-Russia Comprehensive Strategic Partnership of Coordination for a New Era.

Keywords: China-Russia, digital economy cooperation, challenges, path selection.

1. Introduction

In recent years, China and Russia have achieved fruitful results in cooperation under the framework of the strategic cooperative partnership. In May 2024, the heads of state of China and Russia jointly signed and issued the Joint Statement, proposing to deepen cooperation in the digital economy, among other areas. As both countries attach increasing importance to the digital economy, China-Russia digital economy cooperation has become an important breakthrough for deepening bilateral cooperation.

In the research on China-Russia economic cooperation, scholars have traditionally focused on fields such as energy, trade, and finance. In recent years, some have begun to pay attention to digital economy cooperation [1]. However, existing studies still have some deficiencies: first, there is a lack of systematic research; second, the combination of theoretical analysis and empirical research is not close enough [2]; third, the discussion on path selection is relatively abstract, and its pertinence and operability need to be improved.

Based on the above, this paper aims to systematically sort out the realistic conditions and practical status of China-Russia digital economy cooperation [3], deeply analyze the restrictive

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factors, and propose path selections, providing theoretical support and decision-making reference for the deepening development of bilateral cooperation in the digital economy field in the new era [4,5].

2. Current situation of China-Russia economic development and trade-investment cooperation

2.1. Economic development status

The economic foundation is a prerequisite for China and Russia to carry out digital economy cooperation. From 2015 to 2024, the GDP of China and Russia showed an overall upward trend. In 2024, China's GDP was approximately 18.5 trillion US dollars, with a year-on-year growth of 4.98%; Russia's GDP was approximately 1.61 trillion US dollars, with a year-on-year growth of 4.34%.

Table 1. China-Russia GDP and growth rates, 2015-2024

Year	China		Russia	
	GDP	Growth Rate(%)	GDP	Growth Rate(%)
2015	11.3	6.98	1.36	-1.97
2016	12.1	6.78	1.37	0.19
2017	12.9	6.89	1.39	1.83
2018	13.8	6.76	1.43	2.81
2019	14.6	6.07	1.46	2.20
2020	14.9	2.34	1.42	-2.65
2021	16.2	8.57	1.51	5.87
2022	16.7	3.13	1.48	-1.44
2023	17.6	5.41	1.55	4.08
2024	18.5	4.98	1.61	4.34

Data source: World Bank.

China's economic development has laid a solid foundation for bilateral digital economy cooperation. In terms of industrial structure, China's tertiary industry accounts for more than 59%,with core digital economy industries such as information transmission, software, and information technology services achieving rapid development. In 2023, China's digital economy scale reached 53.9 trillion yuan, accounting for 42.8% of GDP,and the digital economy has become a key driver of China's high-quality economic development [6,7].

Despite facing certain structural and external challenges, Russia maintains comparative advantages in specific fields of digital technology. It has a profound academic foundation in basic mathematics, theoretical physics, computer science, and other disciplines, cultivating a large number of high-quality technical talents. Russian enterprises have strong international competitiveness in subdivided fields such as cybersecurity, system software, and game development. At the same time, the Russian government attaches great importance to the development of the digital economy and has formulated and implemented strategic initiatives such as the "Russian Federation Digital Economy Program" [8].

China and Russia show significant complementary characteristics in the development of the digital economy [9]. From the perspective of resource endowment, China has a large consumer market, a relatively complete manufacturing system, and sufficient capital supply capacity, while

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Russia has rich natural resources, a solid theoretical research foundation, and strong basic software development capabilities [10]. In terms of technical advantages, China excels in applied technology innovation, industrialization transformation, and market promotion, while Russia has traditional advantages in basic research, algorithm development, and system architecture design. This complementarity provides favorable conditions for deepening digital economy cooperation between the two countries.

2.2. Trade cooperation status

Bilateral trade is an important carrier and realization path for China and Russia to carry out digital economy cooperation. The economies of China and Russia have good complementarity, and traditional trade cooperation has laid a solid foundation for the development of digital trade [11]. According to China's General Administration of Customs, China-Russia bilateral trade volume reached 244.8 billion US dollars in 2024, a year-on-year increase of 1.9%, hitting a record high. Bilateral trade cooperation has become increasingly close, with rising trade dependence, laying a solid foundation for cooperation in emerging fields such as digital technology and communication technology.

In terms of trade structure, traditional energy and resource trade still dominate, but the proportion of trade in mechanical and electrical products, high-tech products, etc., is gradually increasing. In 2024, China's imports from Russia were dominated by energy, with an import scale of approximately 671 billion yuan, accounting for 73.5%; China's largest exports to Russia were mechanical and electronic products, with an export value of 307.6 billion yuan, accounting for 37.5% [12]. The change in trade structure reflects that economic cooperation between the two countries is moving toward a higher level, creating conditions for in-depth cooperation in the digital economy field.

2.3. Investment cooperation status

Investment cooperation is an important driving force for China-Russia digital economy cooperation, providing financial support and development platforms for technology transfer, industrial upgrading, and market development.

According to China's Ministry of Commerce, by the end of 2023, China's direct investment stock in Russia was 12.13 billion US dollars, covering energy, agriculture, manufacturing, digital economy, and other fields. China's direct investment flow to Russia in 2023 was 629 million US dollars, an increase of 168.8% compared with 2022.

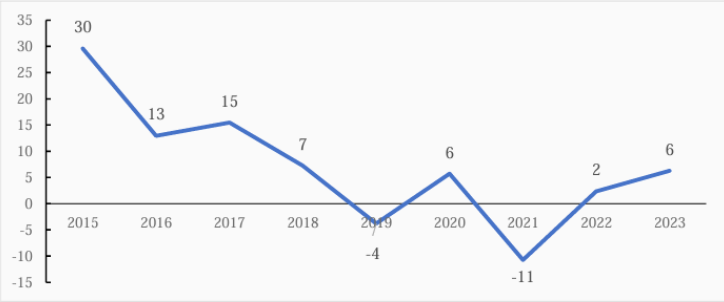

Figure 1. China's direct investment flow to Russia, 2015-2023 (unit: 100 million US dollars)

Data sources:China's Ministry of Commerce,2023 Statistical Bulletin of China's Outward Foreign Direct Investment

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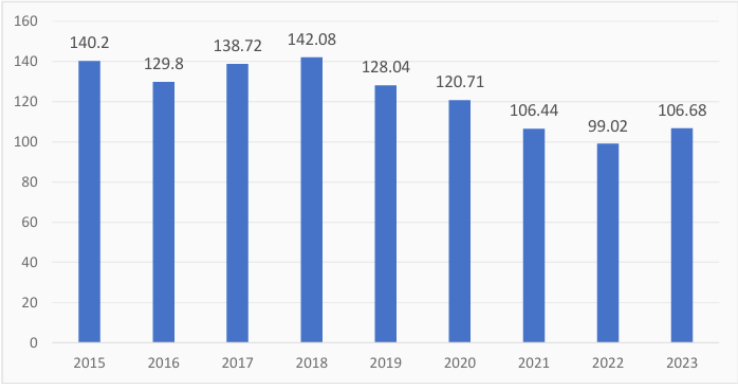

Figure 2. China's direct investment stock in Russia, 2015-2023 (unit: 100 million US dollars)

Data sources: China's Ministry of Commerce,2023 Statistical Bulletin of China's Outward Foreign Direct Investment.

3. Current situation of China-Russia digital economy cooperation

3.1. Digital infrastructure

Digital infrastructure is an important support for the development of the digital economy and a basic field for China-Russia digital economy cooperation. Cooperation between the two countries in network infrastructure and 5G network construction has been deepened, providing solid hardware guarantees for digital economy cooperation.

China and Russia rank among the world's leading in internet development, laying a good foundation for digital economy cooperation. According to data from the International Telecommunication Union, by the end of 2023, China's internet penetration rate reached 77.48%, and Russia's internet penetration rate was 92.25%, both higher than the global average. The improvement of internet infrastructure in both countries provides important conditions for digital economy cooperation [13].

As the core of a new generation of information infrastructure, 5G networks are a key field of China-Russia digital economy cooperation. China takes the lead in the world in 5G technology and construction. As of the end of June 2025, the number of 5G base stations in China exceeded 4.55 million, forming the world's largest and most technologically advanced 5G network. Russia plans to produce 1,000 domestic 5G base stations by 2025 and accelerate the deployment of 5G networks in cities with a population of one million. Huawei signed a 5G cooperation agreement with Russia's MTS to assist in the deployment of commercial networks in core cities such as Moscow and St. Petersburg, and establish a technical pilot in Kronstadt.

3.2. Digital trade

China-Russia cross-border e-commerce cooperation shows a vigorous development trend. According to data released by China's General Administration of Customs, in 2023, the scale of China's cross-border e-commerce exports to Russia reached 84.6 billion yuan, a year-on-year increase of 91%, making Russia the fourth largest destination for China's cross-border e-commerce exports. The number and importance of Chinese sellers on Russian e-commerce platforms are also increasing. In 2024, the number of Chinese sellers on Ozon exceeded 100,000, accounting for approximately 20% of the total registered sellers; Wildberries launched direct purchase cooperation

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with Chinese suppliers and distributors at the end of 2023, and by November 2024, approximately 300 Chinese distributors had registered on the platform.

3.3. Digital technology

Digital technology innovation is the core driving force for the development of the digital economy and a key field of China-Russia digital economy cooperation. China and Russia have built a multi-level and wide-ranging scientific and technological innovation cooperation system, establishing a solid carrier for digital technology innovation, based on jointly formulated documents such as the 《China-Russia Science, Technology and Innovation Cooperation Roadmap 2020-2025》.

The China-Russia Digital Economy Research Center was officially established, focusing on cutting-edge fields such as large model training, intelligent computing power optimization, and data security technology. At the same time, cooperation in science and technology parks has developed vigorously, with key projects such as the Changchun China-Russia Science and Technology Park, Moscow China-Russia Friendship Science and Technology Park, and China-Russia Life Science and Technology Industry Transformation Park successively settled, building important cooperation platforms for scientific and technological enterprises and R&D institutions of the two countries [14].

4. Challenges faced by digital economy cooperation

4.1. Institutional environment and policy coordination obstacles

4.1.1. Digital divide and unbalanced development

Data, as the core production factor of the digital economy, faces strict legal constraints in its cross-border flow. Both China and Russia have set strict legal restrictions on data cross-border flow, creating a double compliance pressure. China's "Data Security Law" and "Personal Information Protection Law" require key information infrastructure operators and data processors handling important data to store collected and generated personal information and important data within the country. Data export requires going through security assessment, personal information protection certification, or signing standard contracts, etc. Russia's "Federal Personal Data Law" requires that personal data of Russian citizens collected within the country must be processed and stored on servers within Russia. Violators will face website blocking and huge fines [15].

The dual restrictions have severely limited the depth and breadth of China-Russia digital economy cooperation. Cross-border e-commerce platforms need to build data centers and local storage facilities separately in each country, which significantly increases the investment cost for infrastructure. Cloud service providers find it difficult to achieve unified data management and cross-border data backup, which affects service efficiency. Emerging digital services such as fintech, online education, and remote healthcare, which rely on data flow, have been restricted in their development.

4.1.2. Differences in cybersecurity standards

The inconsistency of national cybersecurity legislation and technical standards poses challenges to digital economy cooperation. China and Russia adopt different technical paths and certification systems in cybersecurity technical standards, forming technical barriers. For instance, China uses the domestic SM-series cryptographic algorithms, while Russia adopts the GOST series, resulting in incompatible encryption equipment and security software. Consequently, network security products

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from Chinese enterprises require re-adaptation to enter the Russian market, increasing R&D costs. Cooperation in high-security fields like fintech and e-government is significantly restricted, hindering in-depth technical integration and limiting the extension of digital economy cooperation to high-end value chains.

4.2. Gaps in development levels and talent capabilities

4.2.1. Digital divide and unbalanced development

There are significant imbalances in digital development within China and Russia and between the two countries, restricting the overall effectiveness of cooperation. At the infrastructure level, the 5G network coverage and fiber broadband penetration rate in eastern coastal areas of China are much higher than in western regions, while Russia's digital infrastructure is mainly concentrated in central cities such as Moscow and St.Petersburg [16], with relatively weak network infrastructure in the Far East and Siberia. There are also obvious structural differences in the digital economy development levels of the two countries: China leads in consumer internet fields such as mobile payment, e-commerce, and sharing economy, while Russia has advantages in specific technical fields such as cybersecurity and military-industrial informatization.

The imbalance in digital economy development makes it difficult for cooperation projects to achieve scale effects and coordinated development. Chinese enterprises face problems such as insufficient infrastructure and low digital literacy of users when providing digital services in remote areas of Russia, affecting market expansion effects. Russian enterprises struggle to adapt to China's highly competitive and rapidly iterating digital market environment, with low localization of products and services.

4.2.2. Insufficient talent exchange and training

In-depth cooperation in the digital economy relies on cross-border flow of high-quality technical and management talents. China-Russia digital economy cooperation faces serious talent shortages and restricted exchanges. The lack of effective connection between the two countries in digital technology talent training systems, vocational skill certification standards, and academic qualification mutual recognition limits cross-border talent flow and capability improvement. China's digital economy talents are mainly concentrated in internet enterprises and technology companies, with rich practical experience but relatively weak basic theories; Russia has strong talent reserves in basic disciplines such as mathematics, algorithms, and cybersecurity, but lacks experience in commercial applications and market-oriented operations [13].

The imperfection of talent training cooperation mechanisms further exacerbates this challenge. Universities of the two countries lack in-depth cooperation in curriculum design, teaching methods, and practical links in digital economy-related majors, with a limited number of joint training programs and uneven quality. Talent exchanges between enterprises remain at the level of short-term technical consulting and project cooperation, lacking long-term talent training and capacity building plans. Differences in vocational qualification certification systems make it difficult for technical personnel to practice freely between the two countries, restricting the optimal allocation of talent resources.

DOI: 10.54254/2754-1169/2026.LD33239

4.3. External environmental disturbance risks

4.3.1. Geopolitical impact

The complexity of the current international geopolitical environment has had a profound impact on the digital economic cooperation between China and Russia. The trend of differentiation in multilateral digital governance rules is becoming increasingly evident. Digital governance models represented by the digital trade provisions of the CPTPP and the digital chapters of the US-Mexico-Canada Agreement have fundamental differences from the data sovereignty and national governance models of the Internet in China and Russia. The competition over rules not only affects the international digital trade environment but also constrains the international space and expansion of third-party markets for the bilateral digital economic cooperation between China and Russia.

4.3.2. International sanction risks

Third-party sanctions have formed direct technical and financial constraints on China-Russia digital economy cooperation. Technical export controls implemented by the United States and other countries cover core technical fields of the digital economy such as semiconductors, high-end chips, artificial intelligence software, and quantum computing, restricting the depth of China-Russia cooperation in cutting-edge technologies. Restrictions on the use of international financial information systems such as SWIFT have increased the payment and settlement costs of cross-border digital trade. The long-arm jurisdiction effect of sanctions has also affected the enthusiasm of third-party enterprises and financial institutions to participate in China-Russia digital economy cooperation [17].

5. Path selection for deepening China-Russia digital economy cooperation

5.1. Improve digital economy policy coordination mechanisms

Improving bilateral digital economy policy coordination mechanisms is the primary guarantee for deepening cooperation. Based on the consensus on digital economy cooperation in the joint statement, China and Russia should establish a regular digital economy policy dialogue mechanism to conduct in-depth exchanges on major issues such as digital economy development strategies, policies and regulations, and technical standards. A China-Russia annual ministerial meeting mechanism on digital economy can be established, with simultaneous establishment of special working groups on cross-border e-commerce, 5G construction, and data security to conduct regular consultations on specific issues in cooperation.

5.2. Promote data sharing and cybersecurity cooperation

Build a China-Russia data sharing cooperation framework to promote the orderly flow and rational use of government public data, scientific research data, and commercial data under the premise of ensuring data security and privacy protection. In the field of cybersecurity, the two countries should establish a cybersecurity incident information sharing mechanism, strengthen the exchange of cyber threat intelligence, and jointly respond to security challenges such as cyber attacks and data leakage. At the same time, strengthen cooperation in cybersecurity technology research and development, promote the coordinated development of the cybersecurity industry, and enhance the cybersecurity protection capabilities of both countries in cyberspace.

DOI: 10.54254/2754-1169/2026.LD33239

5.3. Strengthen interconnection of digital infrastructure

Strengthening the interconnection of digital infrastructure requires breaking through technical standard barriers. In the 5G field, based on the cooperation between Huawei and MTS, promote compatibility testing between China's 5G technical standards and Russia's local standards, and accelerate the commercialization of 5G networks in core cities such as Moscow and St. Petersburg. Jointly build transnational data center clusters, leveraging Russia's energy advantages and China's technical advantages to create low-carbon and efficient computing infrastructure, providing support for artificial intelligence, big data analysis, etc. [18]

5.4. Deepen digital talent exchange and training

Establish a China-Russia digital talent training cooperation mechanism to strengthen talent training cooperation in fields such as digital technology, data science, and artificial intelligence through university cooperative education, joint training programs, and teacher-student exchanges. Encourage enterprises of the two countries to carry out digital talent exchange and training, and improve the digital skills of practitioners through technical training, professional certification, and internships.

5.5. Promote external risk prevention and control cooperation

Facing the complex geopolitical environment and international sanction risks, China and Russia should build an external risk prevention and control mechanism to enhance the resilience of digital economy cooperation. Establish a risk early warning and assessment system, regularly analyze the impact of international situation changes on bilateral cooperation, formulate hierarchical response plans, and improve the shock resistance of cooperation. Promote the diversification of cooperation paths, actively expand multilateral platforms such as the Shanghai Cooperation Organization and BRICS on the basis of bilateral cooperation, and build an extensive digital economy cooperation network to disperse single-path risks.

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